ADOPTION OF INTERNET BANKING IN HONG KONG

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MBA PROJECT REPORT

Presented to

The Graduate School

In Partial Fulfilment

of the Requirements for the Degree of

MASTER OF BUSINESS ADMINISTRATION

TWO-YEAR MBA PROGRAMME

THE CHINESE UNIVERSITY OF HONG KONG

May 2000

APPROVAL

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Degree: Master of Business Administration

Title of Project: Adoption of Internet Banking in Hong Kong

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Date Approved: 6/5/2000

ABSTRACT

"The Internet is poised to revolutionize banking, and banks that neglect the challenge will do so at their peril", Hong Kong Monetary Authority (HKMA) deputy chief executive David Carse has warned (Beckerling, 2000)[1]. This statement may give you a hint on the importance of Internet banking to the future of Hong Kong's banking industry.

In order to get a better competitive edge in the new evolved mean of business, bankers should know what attributes are important to customers' intention to adopt Internet banking service.

In this study, base on the conceptual framework of the Theory of Reasoned Action, the attributes that would affect customers' overall attitude towards Internet banking and attributes that would affect customers' intention to adopt Internet banking were examined. It was found that convenience and perceived risk place a more important role in determining the overall attitude, and then affect the intention of adoption of Internet banking.

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[1] Beckerling, Louis, "Net Warning Sounded Watchdog Raises Concern about On-line Services Offered at Loss", South China Morning Post, 8 April 2000.

TABLE OF CONTENTS

LIST OF ILLUSTRATION

LIST OF TABLES

CHAPTER I

INTRODUCTION

Introduction

"The Internet is poised to revolutionize banking, and banks that neglect the challenge will do so at their peril", Hong Kong Monetary Authority (HKMA) deputy chief executive David Carse has warned (Beckerling, 2000)[2]. This may give you a hint on the outlook of the new era of the banking industry in Hong Kong.

In the past, retail banking mainly involved obtaining cheap and stable funds from depositors. Nowadays, it has become one of the most profitable and fastest-growing sectors for banks. This is especially true when the profit margin for corporate lending is on the decline, at a time when companies are increasingly bypassing banks and heading for capital markets to raise funds directly through financial instruments. On the other hand, take credit card loans in Hong Kong as an example, the profit margin can be up to 12 percentage points.

As a result, competition among the retail banking business in Hong Kong has

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[2] Beckerling, Louis, "Net Warning Sounded Watchdog Raises Concern about On-line Services Offered at Loss", South China Morning Post, 8 April 2000.

been very keen over the past decade. Up to April 1999, there are already 167 licensed banks in Hong Kong competing for the market share. (Financial Service Bureau, 1999)[3] Now, instead of leaving the customers to come to the branches for the service by themselves, in order to be success, banks must find the ways to reach the customers and deliver the financial service to them in a convenient way.

Banking is an information intensive business which information technology plays an increasingly significant role in it. Thus, Internet Banking may be the way of the banking business in the millennium. And as mentioned by Mr David Carse, depute chief executive of HKMA, with year-end Y2K computer fears now out of the way, banks are free to innovate with new Internet products and services and can catch up with latest development (Anon, 2000)[4].

Problem

Internet banking in Hong Kong is still in a very beginning stage. In order to be more successful in attracting customers, there are still some important issues that banks should tackle with. For instance, to what extent will the retail bank customers adopt Internet banking as a form of banking channel? What are the factors that affect customers' adoptive intention? If banks can understand their customers more, sure it

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[3] Financial Service Bureau, 1999. http://www.info.gov.hk/fsb/fs/content.htm

[4] Anonymous, "With Year-end Y2K Computer Fears Now Out of the Way, Banks Are Free...", South China Morning Post, 13 April 2000.

will grant the banks to have a better competitive edge, not only in cost saving, but also in gaining a bigger pie in the quickly evolving Internet banking business.

Objective of Study

Based on the above, the purpose of this research is therefore, to investigate what attributes will affect the intention to adopt Internet banking, and whether the theory of reasoned action can explain the relationship between the attitude towards Internet banking, the subjective norm perceived by the customers, and the adoption intention of retail bank customers. The findings of this research should be able to point out the important attributes for the success of Internet banking, from which managerial implication will be given in order to help the management of the banks to formulate their marketing strategies in designing and promoting their Internet banking tools.

CHAPTER II

BACKGROUND

Internet Banking Worldwide

The Internet banking business in Europe is flourishing. As quoted by the American Banker Magazine, banks in Scandinavia and other parts of Europe, where Internet banking has taken off much faster than in the United States, are beginning to see glimmers of profitability from their online offerings.

For example, Bank of Ireland is running a pilot project at three branches to funnel more business customers to Internet banking. First the bank routed all calls from business customers to a single person in each branch who tallied the callers' queries – and found that two-third were calling about routine transactions. Then the bank began encouraging those callers to use its Business Online Internet service, where large and small businesses can view accounts, complete fund transfers, and make international payments. As a result, 70% of business customers' telephone calls to those three branches have been eliminated, and many of the people who once fielded calls have been reassigned.

For Svenska Handelsbanken in Stockholm, Scandinavia's largest bank with over one hundred and twenty billion assets, is beginning to realize cost savings from Internet banking, whose popularity was behind a decision to cut two hundred and thirty five workers, or 5% of its work force last year. 80% of its transactions are already automated, and about 20% to 25% of corporate customers' transactions and 15% to 20% of retail customers' transactions go through the Internet.

Moreover, MeritaNordbanden in Finland says it expects Internet banking to add $250 million to $300 million to annual earnings within three years, split evenly between cost-cutting and revenue increases (Power, 2000)[5].

What adds to the attractiveness of Internet banking is: in Britain, Internet Bank "Egg", which was set up by Prudential Banking PLC said the Internet Bank has attracted sixty thousand customers in just eighteen months (Power et al., 2000)[6].

It is predicted that the growth of on-line banking in Europe will be enhanced by the use of third generation mobile networks and WAP-enabled mobile handsets, of which there should be about three hundred million in use by 2002 (Power et al., 2000)[5].

In addition, Internet banking is getting very popular in the States. According to the survey done by Gomez Advisors Inc., 68% of the top 50 U.S. retail banks now offer

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[5] Power, et. al, "European Banks Say They'll Show Web Profit", American Banker, New York, 23 Mar 2000, p. 1.

[6] Power, et. al, "U.K. Net Banking: An Increasingly Crowded Field", American Banker, New York, 24 Mar 2000, p. 11.

Internet banking that include services such as access to checking accounts with bill payment services - the minimum requirement for inclusion in the rankings. (Power, 1999)[7] An extreme case is the Security First Network Bank, which offer Internet-only bank services with no physical branch at all.

Internet banking is emerging as the technology that will revolutionize financial services. The number of American households using Internet banking is projected to increase from 4.8 million to more than 10 million by the end of 2001. The economic advantages of brickless banking can translate into superior productivity ratios. This average expense-to-revenue ratio can be as low as 15% when compared to 80% of the traditional way. (Esser, 1999)[8]

Internet banking is also gaining popularity in Asia. First Asia's purely online bank will be opened shortly as a joint venture of Singapore's Overseas Union Bank and Europe's First-e. This new bank will offer banking services such as checking accounts and credit cards. This new venture has succeeded in attracting a lot of attention (Webb, 2000)[9].

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[7] Power, Carol, "Internet Banks Dominate in Ranking of Bank Web Sites", American Banker, 25 Oct 1999, p. 15.

[8] Esser, J., "Internet Banking is a Virtual Necessity", Credit Union Magazine, Vol 65, Oct 1999, p. 35-36.

[9] Webb, Sara, "Asia: Online Venture Raises OUB Profile Among Asian Banks – Analysis Say Effort Bolsters Case for Owning its Stock", The Wall Street Journal Europe, 12 April 2000, p. 9.

Background of Retail Banking and the evolution of Internet banking in Hong Kong

Hong Kong is well known to be an international financial center. The small island is crowded with numerous domestic and foreign banks. In the banking sector, at the end of April 1999, there were 167 licensed banks, 60 restricted license banks and 90 deposit-taking companies in Hong Kong, together with 134 local representative offices from over 40 countries. These include 78 out of the world's largest 100 banks. Together they operated a comprehensive network of 1576 local branches, excluding their principal place of business in Hong Kong. (Financial Service Bureau, 1999)[3]

Virtual Banking is quite new in the banking industry and is generally recognized as including ATM, Phone Banking, Home Banking, and Internet Banking. ATM was first introduced to Hong Kong in 1979. It provides some basic banking services on a 24-hour basis. By using an ATM card and a personal password, customers can deposit or withdraw cash, transfer funds from one account to another, inquire about account balance and request for checkbooks and account statement. Telephone banking allows customers to conduct transactions through telephones. Phone Banking services can be divided into two types: operator-attended and automated.

Home Banking is defined as the conducting of transactions and accessing bank account information via personal computers (PC). Sometimes, it is also called Electronic Banking. It is, in fact, the most similar way of banking service with the Internet Banking. Users can, as the same as Internet Banking, use a PC, a modem and a

telephone line to connect to the Home Banking service. The only difference is that the users must install specific banking application software to perform the banking functions. The first Home Banking service was launched in Hong Kong in 1985 by Hong Kong Bank (which is now called the HSBC) and Hand Seng Bank, and the system is called the Hexagon. However, these kinds of application software are different from bank to bank, and are not compatible with one and other (Liao, Wang, and Chen, 1999)[10].

Internet Banking is introduced in Hong Kong very lately. Citibank launched its Internet service in Hong Kong in November 1998, becoming the first of the territory's big banks to tap the new technology. By the end of March 1999, more than 6% of all transactions at the bank were being done over the Internet.

At the very moment, there are only six major banks in Hong Kong offering Internet banking with bill payment and other real transaction functions. They are Citi-bank (http://www.citibank.com.hk), Hang Seng Bank (http://www.hangseng.com), Dah Sing Bank (http://www.dahsing.com.hk), Chekiang First Bank (www.cfb.com.hk), Bank of East Asia (http://www.hkbea-cyberbanking.com), and Wing Lung Bank (http://www.bankwinglung.com). Many other banks, for example, Dao Heng Bank and HSBC, are already taking action in getting into this new business area.

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10 Liao, S., Shao, Y.P., Wang, H., & Chen, A., "The Adoption of Virtual Banking: An Empirical Study", International Journal of Information Management, Feb 1999, p. 63-74.

The services included by the Internet banking are mainly: bank's service inquiries, account transfer, bill-payment, account checking service, equity transactions, and foreign currency transactions. Although it may involve a lot of effort to start up this new business sector, the opportunities that can be brought by Internet banking are tremendous.

According to Mr. William Lo, chief executive of Citibank Hong Kong's consumer-banking operations, transactions conducted over the Internet merely cost a bank between one-fifteenth and one-tenth of what they cost at a traditional bank counter. (Bickers, 1999)[11] It is obvious that the banks in Hong Kong should not let this golden business opportunity to cease.

Internet Usage in Hong Kong

The Internet usage in Hong Kong is growing at an exponential rate. According to AC Nielsen, the global leader in delivering market research, the Internet usage in Hong Kong has grown from 12% to 16% of the population from 98 to 99 which hits the number of 1,051,000.

So far, the users of this new technology are primarily tech-savvy students and high-income customers. This second group, of course, is one that bankers are keenly interested in – plugging into the Internet early could help banks attract the best

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[11] Bickers, C., "Net Returns – The Prospect of Huge Savings Draws Banks to the Web", Far Eastern Economic Review, 6 May 1999, p. 48.

customers. (Bickers, 1999)

CHAPTER III

LITERATURE REVIEW

Previous Research

There are several researches done related to the adoption of Internet Banking in Hong Kong. For example, Liao, Shao, Wang, (Liao, 1999)[10] and Chen, had done a research on the adoption of virtual banking in Hong Kong; Chan (Chan, 1997)[12] had also done a research on the Internet Banking in Hong Kong. Although the model used, which is the Theory of Planned Behavior Model, can describe the positive relationship between attitudes and intention to use the virtual banking services, and these studies have been able to define some attributes that are important for Internet Banking, the accuracy and relevancy of these researches are subject to test because by the time that these researches are being done, none of the banks in Hong Kong was offering Internet banking service, and the popularity of Internet usage was far less than now.

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[12] Chan, W.F, "Internet Banking in Hong Kong", CUMBA Project Report 1997.

Conceptual Framework – Theory of Reasoned Action

Theory of reasoned action is based on the proposition that an individual's behavior is determined by the individual's behavioral intention (BI) to perform that behavior, which provides the most accurate prediction of behavior (Fishbein and Ajzen, 1975). Behavioral intention is a function of two factors: one is Attitude toward the behavior (A) and Subjective Norm (SN) (Chang, 1998)[13].

The first conceptual independent determinant of behavioral intention is the attitude toward the behavior and refers to as the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavioral in question. The second predictor is a social factor termed subjective norm, which refers to the perceived social pressure to perform or not to perform the behavior.

The relative importance of attitude and subjective norm in the prediction of intention is expected to vary across behaviors and intentions. Thus, in some applications it may be found that only attitudes have a significant impact on intentions, in other that both attitudes and subjective norms are sufficient to account for intentions. (Ajzen, 1991)

Formally, the theory of reasoned action can be presented as follows: (J.

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[13] Chang, M.K., "Predicting Unethical Behavior: A Comparison of the Theory of Reasoned Action and the Theory of Planned Behavior", Journal of Business Ethics 17, 1998, p. 1825-1834.

Paul,1987)[14]

$$\mathbf{BI = A_{act}(W_1) + SN(W_2)}$$

Where

BI = consumer's intention to engage in that behavior

A_{act} =consumer's attitude towards engaging in that behavior

SN =subjective norm regarding whether other people want the consumer to engage in that behavior

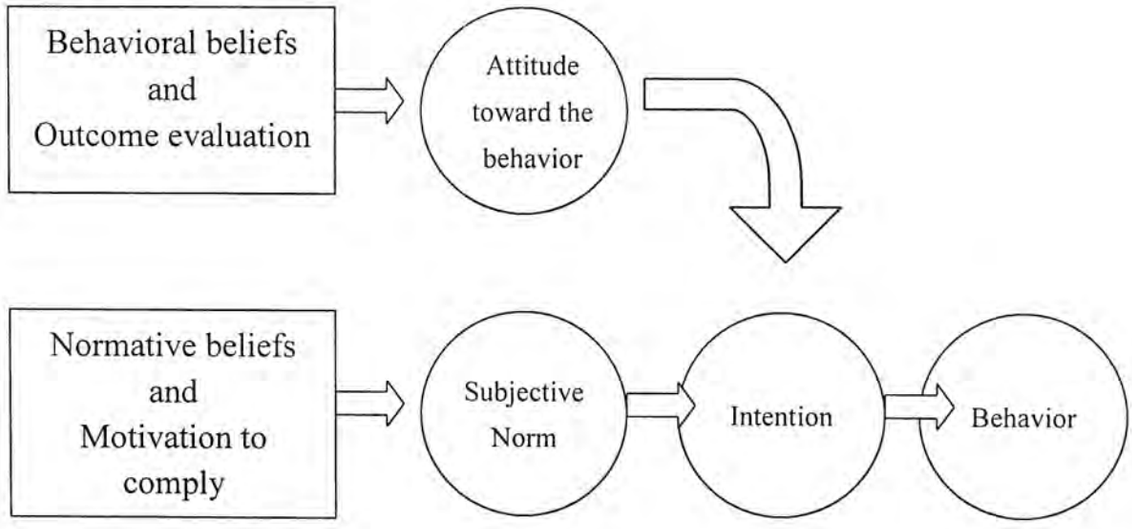
W_1 and W_2 =weights that reflect the relative influence of the A_{act} and SN components on BI

The entire model is presented in Figure1.

Figure 1 depicts the theory of reasoned action

FIGURE 1

THEORY OF REASONED ACTION (MODEL COMPONENTS)



[14] J. Paul Peter & Jerry C. Olson. Consumer Behavior and Marketing Strategy, Irwin, 1987

Behavioral Intentions

In the theory of reasoned action, a central factor is the individual's intention to perform a given behavior. Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior (Ajzen 1985, 1987, 1991). As a general rule, the stronger the intention to engage in the behavior, the more likely should be its performance.

It should be clear, however, that a behavioral intention could find expression in behavior only if the behavior in question is under volitional control, i.e., if the person can decide at will to perform or not perform the behavior. Although some behaviors may in fact meet this requirement quite well, the performance of most behaviors depends at least to some degree on such non-motivational factors as availability of requisite opportunities and resources (e.g., time, money skills, cooperation of others). Collectively, these factors represent people's actual control over the behavior. To the extent that a person has the required opportunities and resources, and intends to perform the behavior, he or she could succeed in doing so.

Attitude

Most contemporary social psychologists take a cognitive or information processing approach to attitude formation. This approach is exemplified by Fishbein and Ajzen's (1975) expectancy-value model of attitudes. According to this model,

attitudes develop reasonably from the beliefs people hold about an objective by associating it with certain attributes. In the case of attitudes toward a behavior, each belief links the behavioral to a certain outcome, or to some other attributes such as the cost incurred by performing the behavior. In a typical study, a standard, global measure of attitude is obtained, usually by means of an evaluative semantic differential scale, and this standard measure is then correlated with an estimate of the same attitude based on salient beliefs and the subjective evaluations of the beliefs (e.g., Ajzen 1974; Fishbein 1963; Fishbein and Ajzen 1981; Jaccard and Davidson 1972,; Godin and Shephard 1987; Insko 1970; Rosenberg 1956). Results of past studies have general supported the hypothesized relations between salient beliefs and attitudes, although the magnitude of this relation has sometimes been disappointing (e.g. Ajzen and Madden 1986; Fishbein and Ajzen 1981).

Attitude toward the behavior, thus, is defined as "a person's general feeling of favorableness or unfavorableness for that behavior" (Ajzen and Fishbein, 1980)[15]. Attitude toward behavior is a function of the product of one's salient belief (B) that performing the behavior will lead to certain outcomes, and an evaluation of the outcome (E) (Chang, 1998)[13].

It is defined as:

$$A = \Sigma\, B_i E_i$$

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[15] Ajzen, I. & M. Fishbein, Understanding Attitudes and Predicting Social Behavior, Prentice-Hall. New Jersey: Englewood Cliffs, 1980.

Have a review upon the past studies on Theory of Reasoned Action, it is not difficult to see some studies suggested A = f(Bi) instead of A= f(Bi, Ei). [16]

Subjective Norm

Normative beliefs are conceren with the likelihood that important referent individuals or groups approve or disapprove of performing a given behavior (Ajzen 1985, 1991). As in the case of attitude, a global measure of subjective norm is correlated with an estimate of the same subjective norm based on normative beliefs and motivation to comply with the referent in question. The empirical findings of the relation between normative beliefs and subjective morns are generally similar to the findings with respect to attitudes (see, e.g., Ajzen and Madden 1986; Fishbein and Ajzen 1981).

Subjective Norm is defined as a person's "perception that most people who are important to him think he should or should not perform the behavior in question" (Ajzen and Fishbein, 1980)[14]. Subjective Norm is a function of the product of one's normative belief (NB) which is the " person's belief that the salient referent thinks he should or should not perform the behavior" (Ajzen and Fishbein, 1980)[14], and his/her motivation to comply (MC) with that referent.

Subjective Norm can thus be defined as:

$$SN = \Sigma\, NB_i MC_i$$

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[16] Bagozzi, Richard P.; Baumgartner, Hans; Yi, Youjae; "State Versus Action Orientation and the Theory of Reasoned Action", Journal of Consumer Research, Mar1992, p. 505-519.

Variables that are external to the model are assumed to influence intentions only to the extent that they affect either attitudes or subjective norms (Fishbein and Ajzen, 1975)[17].

Using this theory, we should be able to measure attitude and subjective norm and both predict and explain both the content and relative magnitude of a given person's behavioral intentions. It can quantitatively illustrate how close we are to explaining a behavior completely. (Regis, 1990)[18]

The theory of reasoned action has been successfully applied to a large number of situations in predicting the performance of behavior and intentions, such as predicting turnover (Prestholdt et al., 1987)[19]; education (Fredricks and Dossett, 1983)[20]; and breast cancer examination (Timko, 1987)[21]. Sheppard et al. (1988)[22] also concluded

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[17] Fishbein, M. & I. Ajzen, "Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research". Addison Wesley, Reading, Mass, 1975.

[18] David Regis, "Theory of Reasoned Action", University of Exeter, 1990

[19] Prestholdt, P. H., I. M. Lane and R. C. Mathews, "Nurse Turnover as Reasoned Action; Development of a Process Model", Journal of Applied Psychology 72, 1987, p. 221-227.

[20] Fredricks, A. J. and D. L. Dossett, "Attitude-Behavior Relatins: A Comparison of the Fishbein-Ajzen and the Bentler-Speckart Models", Journal of Personality and Social Psychology 45, 1983, p. 501-512.

[21] Timko, C., "Seeking Medical Care for a Breast Cancer Symptom: Determinants of Intentions to Engage in Prompt or Delay Behavior", Health Psychology 6, 1987, p. 305-328.

[22] Sheppard, B. H., J. Hartwick and P. R. Warshaw, "The Theory of Reasoned

that the predictive utility of the theory of reasoned action was strong across conditions, such as weight loss, smoking, choice of occupation, and voting choice (Ellis, 1999)[23].

Conceptual Model

In this study, the conceptual model used is the Theory of Reasoned Action model (Ajzen, 1975)[15]. According to the model, a client's intention to adopt the Internet banking services is based on two factors: attitude toward performing the behavior and subjective norms regarding the behavior.

Decomposing Attitudinal Belief Structure

Attitude towards performing the behavior is a person's judgement that performing the behavior is good or bad, that one in favor of or against performing this behavior.[24] Based on our exploratory study with those students who adopt Internet services, such as checking email and data searching, in their daily life, several characteristics can be identified as the reasons they adopt the new banking services. They are:

Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research", Journal of Consumer Research 15, 1988, p. 325-343.

[23] Ellis, and Arieli, "Predicting Intentions to Report Administrative and Disciplinary Infractions: Applying the Reasoned Action Model", Human Relations, Vol 52, Issue 7, 1999, p. 947.

[24] J. Paul Peter & Jerry C. Olson. Consumer Behavior and Marketing Strategy. Irwin Press, 1987

Convenience: the degree to which an innovation is perceived as hassle-free.

Superior Information: the degree to which an innovation is perceived as providing more information in comparing with the competitive product.

Reasonableness of price: the degree to which an innovation is charging an acceptable price.

Risk: the degree to which an innovation is perceived to be free from danger in using it.

The above characteristics are supported by the literature in the area of Internet banking. Most of the literatures are originated from US, a market where Internet banking is well established. Their proposition is to provide "fast, easy, and low-cost service" through the new electronic channel.[25] In addition, Robinson (1997)[26] contended that convenience is the main distinguish feature of Internet banking as it provides 24-hour-service, allowing customers to perform any financial transaction at their own convenience.

Moreover, Midland bank admitted that Internet banking can provide superior information with the help of computers that are able to analyze their customer's transaction history, draw valuable information about their needs and preference and

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[25] Keene, Robert L, "Don't Let Cost Drive Customers Away", American Banker, 05/14/99. Vol 164, Issue 92, P7.

[26] Robinson L. "Banks hit home-web based banking hits home like few other technologies", Http://www.techweb.com/se/directlink.cgi?INW19980316s0088, 1997

create a customer profile in order to offer customers tailor-made services[27]. Furthermore, recent statistics from the American Bankers Association and other studies show that Internet transactions cost much lower when compared with other means of transaction[28]. Thus, it can lower the service charge by delivering the services through Internet banking. Regarding to the security issue, it is also a factor that increases the degree of uncertainty about the future evolution of Internet banking.[29]

Decomposing Normative Belief Structure

The social component of TRA, the subjective norm, is a person's perception of whether most people who are important to the person think that he or she should perform the behavior in question[23]. It is also based on the findings from exploratory group interview. Results show that approval from the others, such as family members and peers, is the determinants of subjective norm. It is also supported by the literature that cited family composition is crucial for advancing the bank's predictive marketing and sales-lead capabilities.[30] As such, referent groups' influence, such as family, will

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[27] Carrington M St. and Languth, PW , How Technology is Creating Winners and Losers, P.165 Ptiman Publishing.1997

[28] Keene, Robert L, "Don't Let Costs Drive Customers Away", American Banker, 05/14/99, Vol 164 Issue 92, P7

[29] Basle Committee on Banking Supervision, "Core Principles for Effective Banking Supervision", Sept 1997

[30] Shallanberger Michael, "10 Tips for Selling with Technology ", American Banker,

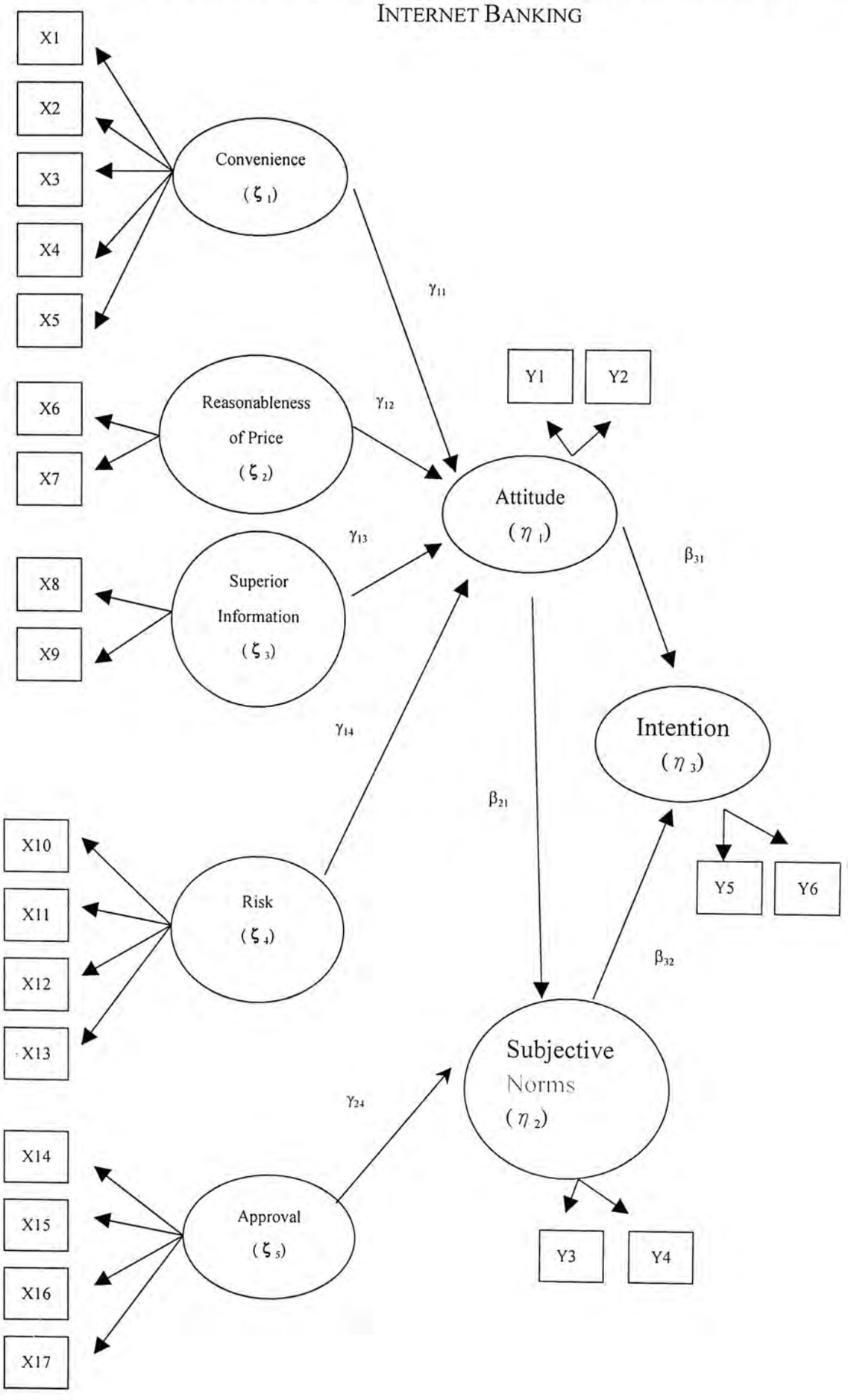
affect the adoption of the Internet banking. This paper hypothesizes that the higher the expectation in using Internet banking services from the referent groups is, the more likely one will use the Internet banking services.

Research Model

Figure 2 shows the model used in this research. Attitudinal and normative beliefs are decomposed into multi-dimensional belief constructs. For attitude, the belief dimensions embrace convenience, superior information, reasonableness of money, and risk. For subjective norm, it is believe that the referent groups that affect the adoption intention of Internet banking.

FIGURE 2

THE CONCEPTUAL MODEL OF THE FACTORS AFFECTING THE ADOPTION OF INTERNET BANKING



Research Hypotheses

To investigate the reasons of adopting the Internet banking services, this study has employed the following hypotheses. At the same time, the questionnaire design is based on the every hypothesis.

H_1: The higher the perceived convenience of the Internet banking compared with the traditional banking services is, the more favorable the client's attitude toward the Internet banking services will be.

H_2: The more the perceived superior information the Internet banking provide, the more favorable the client's attitude toward the Internet banking services will be.

H_3: The more reasonable the perceived price in using the Internet banking is, the more favorable the client's attitude toward the Internet banking services will be.

H_4: The higher the perceived risk upon using Internet banking is, the less favorable the client's attitude toward the Internet banking services will be.

H_5: The more positive the approval from the other people upon using Internet banking services is, the more favorable the client's subjective norms toward the Internet banking services will be.

H_6: The more favorable the attitude towards Internet banking services is, the more favorable the client's subjective norms toward the Internet banking services will be.

H_7: The more favorable the subjective norm of using the Internet banking services is, the more favorable the client's intention to use the Internet banking services will be.

H_8: The more favorable the attitude of using the Internet banking services is, the more

favorable the client's intention to use the Internet banking services will be.

CHAPTER IV

METHODOLOGY

Research Design

Upon the beginning of this study, interviews with the students of the Chinese University of Hong Kong's Master of Business Administration course were conducted in order to collect general ideas about the attributes that our target group will consider as important in adopting Internet banking. These attributes serve as the fundamental base for our questionnaire design in the later stage.

For research design, sample survey was used to collect the data required in this research.

Questionnaire Design / Operationalization

To test the importance of each construct, several questions are designed for each category.

Convenience

X_1: Internet banking is very convenient for me because I can access the banking services via the computer at home/office. (agree/ disagree)

X_2: Internet banking is very convenient for me because it provides 24 hours services. (agree/ disagree)

X_3: Internet banking is very convenient for me because it requires less time to process the banking services. (agree/ disagree)

X_4: Internet banking can save my time in handling banking services especially when I know what services I want. (agree/ disagree)

X_5: Internet banking can save my efforts in handling the banking services, such as payment transfer, balance inquiry, etc. (agree/ disagree)

Superior Information

X_6: I can get much more banking information from Internet banking than from the branch. (agree/ disagree)

X_7: The content of the Internet banking web-site is more comprehensive. (agree/ disagree)

Reasonableness of price

X_8: The service charges of Internet banking are more reasonable than of the branch. (agree/ disagree)

X_9: Internet banking charges me less for the services. (agree/ disagree)

Risk

X_{10}: Internet banking is riskier because it is easier for the others to steal my personal information. (agree/ disagree)

X_{11}: Internet banking is not trustworthy as the transactions are not taken place in the branch. (agree/ disagree)

X_{12}: It is more complicated to use the banking services via Internet banking than the branch. (agree/ disagree)

X_{13}: I do not trust Internet banking because the IT development of the banks with the Internet banking services is not good enough. (agree/ disagree)

Approval from the others

X_{14}: I know some friends who regularly use Internet banking services. (agree/ disagree)

X_{15}: My friends and colleagues generally recommend/support me to use Internet banking services. (agree/ disagree)

X_{16}: Some members of my family regularly use Internet banking services. (agree/ disagree)

X_{17}: Members of my family generally recommend/support me to use Internet banking services. (agree/ disagree)

Subjective Norms

X_{18}: Overall, I think my friends and family are positive about my decision to use

Internet banking services. (agree/ disagree)

X_{19}: Overall, I think my friends' and family's attitude toward my decision to use Internet banking services is favorable. (agree/ disagree)

Attitude

X_{20}: My overall attitude towards Internet banking is positive. (agree/ disagree)

X_{21}: Overall, I like the idea of adopting Internet banking. (agree/ disagree)

Intention

X_{22}: I intend to use my bank's Internet banking services in the near future. (likely/ unlikely)

X_{23}: I will consider Internet banking as my alternative to use the banking services in the future. (likely/ unlikely)

Sample and Sampling Procedure

Judgmental sampling method is employed to collect responds from our target group. University students were selected as our target group as by our judgement, those university students should at least hold a bank account in Hong Kong, and should have some kind of knowledge about the Internet. One hundred and twenty eight copies of questionnaires were distributed to classmates in full-time MBA programme of the Chinese University of Hong Kong and to undergraduate students in the University

libraries. One hundred and twenty five completed and useable questionnaires were collected.

Data Collection Method

A self-administrated questionnaire survey was conducted to collect data about the attitude and the intention to use in the future toward Internet banking. The respond rate is over 99%.

The seven-scale Likert scale anchored with "strongly agree" (1) to "strongly disagree" (7) was employed in our questionnaire. There are two sections in the questionnaire. The first section contains twenty-three questions for measuring the respondents' attitude toward Internet banking and the intention to use in the future. The attributes used in the questionnaire were established after the interviews with the MBA students of the Chinese University of Hong Kong.

In the first section of the questionnaire, concepts of relative advantage, expressed by using constructs: convenience, information provides, reasonableness of price; risk, and subjective norm influence: expressed by using constructs: approval from others, were measured in the first half of the questionnaire. The overall attitude and intention to use toward Internet banking were measured in the second half of the first section.

The demographic information of the respondents was collected in the section two of the questionnaire.

Data Analysis

The data collected regarding the constructs measured in the first section of questionnaire were processed in the factor analysis. Factor analysis is the method to reduce a large number of variables into a certain number of dimensions. In our study, this method is employed to sort out a number of attributes that are the critical factors affecting people in choosing Internet Banking service. The rest of the attributes will be eliminated from the analysis done in the later part of the analysis.

This study employed a structural equation approach (Hair, 1995)[31]; the advantages of doing so have been explicated elsewhere (Bagozzi, 1981[32], 1982[33]; Bentler and Speckart, 1979[34]; Ryan, 1982[35]). The collected data of 125 subjects (with no missing values) were input into PRELIS 2 (Jöreskog and Sörbom, 1988)[36], which

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[36] Jöreskog, K. G., and Sörbom, D., PRELIS: A Program for Multivariate Data

generated the covariance matrix for the structural equation analysis. These matrices, in turn, were input into LISREL 8 (Jöreskog and Sörbom, 1993)[37] to examine the fit of the models (measurement and structural equation models) and to test the causal relationships specified in the conceptual model.

Screening and Data Summarization, 2nd ed., Scientific Software, Inc., IN, 1988.

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CHAPTER V

FINDINGS AND ANALYSIS

From the perspective of the adoption of Internet banking by the Internet users, the data collected was analyzed by using by using three statistics applications, namely, SPSS, PRELIS 2, and LISREL 8.

SPSS is employed to perform the Factor Analysis and Reliability Test. With the use of PRELIS 2 and LISREL 8, structural equation modeling can be formed. In using PRELIS 2, data form the covariance matrix, and the result becomes the source data for LISREL 8 to compute the structural equation model.

In using LISREL 8, two sets of data can be formed. They are the measurement model data and the structural equation model data. The aim of evaluating the measurement model is to investigate how the latent variables or hypothetical constructs are measured in term of the observed variables, and it describes the measurement properties (validities and reliabilities) of the observed variables.

The aim of evaluating the structural equation model is to investigate the causal relations among the latent variables and describes the causal effects and the amount of

unexplained variance. (Jröeskog and Sörbom 1989)[38]

Factor Analysis

Factor Analysis is a data reduction technique. The importance of using Factor Analysis is in the identification of factors underlying a large set of variables. By clustering a large number of variables into a small number of homogeneous sets and creating a new variable, or a factor, in representing each of these sets. Consequently, our data set can be simplified to a smaller, more manageable, and interpretable number of factors.

In our study, five factors can be identified in our data set. This is in line with the original categorization of the questions. They are: convenience, superior information, reasonableness of price, risk, and approval.

The Original Conceptual Model

Measurement Model Fit

The measurement model specifies how the latent variables or hypothetical constructs are measured in terms of observed variables, and it describes the measurement properties (validity and reliabilities) of the observed variables. This definition implies that a good measurement model should have (1) high and statistically

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[38] Jöreskog and Sörbom, Structural Equation Modeling with the SIMPLIS Command Language, Chicago , Scientific Software, Inc. 1993

significant indicator coefficients (λ^x s and λ^y s), (2) high reliabilities (Cronbach αs), and high validity (i.e., proportion-of-variance extracted index).

Reliability of the Measurement

Reliability is a measure of reproducibility. If the re-measurements of each object will retain approximately its same score, we can say that the measurements are reliable and the results are due to some intrinsic characteristic of the object. On the other hands, if the measurements on a set of objects that cannot be replicated, we can conclude the scores are extremely unstable or that the score obtained by a matter of chance. Generally, the threshold value for acceptable reliability is 0.7, recommended by Nunnally (1978)[39] for the exploratory research.

In our study, several observed variables are designed to measure the latent variables. The reliability test is to measure the internal consistency of the construct indicators, showing the degree to which they indicate the common latent construct. In Table 1, the values of the standardized factor loadings and the Cronbach's alpha are shown. In the first item of the each construct, the factor loadings are fixed at 1.00, with a purpose to set up a scale for the latent constructs. Generally, the indicator coefficients (λs) of the constructs are high and statistically significant ($p < 0.01$, one tailed). In examining the reliability level, we found that the values of the Cronbach's alpha (α) are ranged from 0.60 to 0.9024. This suggests that the reliability level for the constructs are

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[39]Nunnally, J.C Psychometric Theory, 2nd ed. NY: McGraw-Hill, 1978

moderate to high.

Validity of the measurement

The more conservative proportion-of-variance extracted index, which indicates the amount of variance captured by a construct in relation to the amount of variance due to measurement error, demonstrates that all the constructs except perceived risk (0.672) have moderately high to high validity (ranging from 0.739 to 0.869). The figures of the proportion-of-variance extracted were listed in Table 1.

In addition, in our study, our questionnaire has undergone two validity tests, namely, face validity test and content validity test. Regarding the face validity test, some of our classmates have been selected to study our questionnaire. They are requested to express the meaning of every question. The purpose is to ensure the questions are measuring what we want to measure. In addition, our questionnaire has passed to our professor for the content validity test.

Hence, it can be concluded that the measurement model is acceptable in this study. As such, we proceed to check the structural model results.

Table 1. Measurement Model Results: The Original Model

Constructs and Indicators	Standardized Factor Loadings	Reliability	Proportion of variance extracted
CONVENIENCE		0.8774	0.814
X_1 ("easy access")	1.00	0.785	
X_2 ("24 hour services")	0.97	0.792	
X_3 ("less processing time")	1.04	0.860	
X_4 ("save time")	1.04	0.847	
X_5 ("save efforts")	0.78	0.786	
INFORMATIVE		0.6000	0.815
X_8 ("more banking information")	1.00	0.756	
X_9 ("comprehensive content")	0.88	0.873	
VALUE		0.7334	0.860
X_6 ("reasonable charge")	1.00	0.861	
X_7 ("charge less")	0.59	0.859	
RISK		0.6774	0.672
X_{10} ("steal personal information")	1.00	0.550	
X_{11} ("place of transaction ")	1.21	0.758	
X_{12} ("complicated to use")	0.72	0.578	
X_{13} ("outdated IT development")	0.98	0.802	
APPROVAL		0.8670	0.833
X_{14} ("friends use Internet banking")	1.00	0.721	
X_{15} ("recommended by friend")	0.99	0.851	
X_{16} ("family uses Internet banking")	1.21	0.872	
X_{17} ("recommend by family")	1.25	0.888	
SUBJECTIVE NORM		0.8984	0.739
Y_1 ("my friend and family are positive")	1.0	0.721	
Y_2 ("my friend and family's attitude is favorable")	0.96	0.756	
ATTITUDE		0.9024	0.869
Y_3 ("attitude is positive")	1.0	0.889	
Y_4 ("like the idea")	0.93	0.849	
BEHAVIOR INTENTION		0.8747	0.858
Y_5 ("intend to use")	1.0	0.831	
Y_6 ("alternative of banking services")	1.04	0.884	

Structural Model Fit

By using the Structural Equation Modeling method, our study aims to conduct an examination over the causal relationships among the latent variables and describes the causal effects and the amount of unexplained variance.

Before examining the coefficient of the determinants, the maximum likelihood estimate for the structural equation is checked to ensure a satisfactory fit to the data.

Overall Model Fit

Employing the use of the Model Fit, our study dedicates to understand whether the Structural Equation Modeling method fits the sample data by using Chi-squared (χ^2), Bentler's comparative fit Index (CFI), Bollen's incremental fix index (IFI), Goodness of Fit Index (GFI) and Normed Fit Index (NFI).

Chi-square (χ^2)

In our study, the Chi-square value of 441.02 with 212 degrees of freedom is statistically significant at the 0.00 significance level. Thus, it indicates that the model does not adequately account for the relationship between the observed sample covariance and the hypothetical population covariance. However, χ^2 test is sensitive to sample size, and as the sample size increases, the χ^2 test has a tendency to indicate a significant probability level. In contrast, as the sample size decreases, the χ^2 test indicates a non-significant probability levels. In this situation, other indices are

employed to test how much better the model fits compared to a baseline model.

Other Fit Indices

Based on the chi-square value of the independence model with 253 degrees of freedom, the CFI and IFI of the structural equation model were calculated with the value 0.86, while the value of the GFI and NFI are 0.76. To have a good fit model, the value should be close to 0.9. In this sense, our structural equation model is a moderate fit.

In chapter III, it was hypothesized that attitude towards the new product is a function of convenience, superior information, reasonableness of price, and risk. The results (illustrated in Table 3) show that convenience (γ_{11} = 0.68, p <0.01, one-tailed), superior information (γ_{13} = 0.34, p <0.01, one-tailed), and risk (γ_{14} = -0.73, p <0.01, one-tailed) are the significant determinants of the attitude. But, reasonableness of price (γ_{12} = 0.05, p <0.01, one-tailed) is a trivial determinant or it can be dropped. The R^2, or proportion of variance explained by the variables included in the function, is 0.62. The negative value of risk implied that the higher the risk level in using Internet banking, the less favorable for the people to use it.

For subjective norms, it is hypothesized that it is a function of attitude and approval. The results show that attitude (β_{31} = 0.45, p <0.01, one-tailed) and approval (γ_{25} = 0.49, p <0.01, one-tailed) is significant. The R^2, or proportion of variance explained by the variables included in the function, is 0.52.

For intention, it is hypothesized that it is a function of attitude and subjective norms. The results show that subjective norm (β_{31} = 0.11, p <0.01, one-tailed) and attitude (β_{32} = 0.77, p <0.01, one-tailed) are significant. The R^2, or proportion of variance explained by the variables included in the function, is 0.81.

Table 2. Fit Statistics: The Original Model

Chi-square	441.02
Degree of Freedom	212
Probability	0.0
Comparative Fit Index (CFI)	0.86
Incremental Fit Index (IFI)	0.86
Goodness of Fit Index (GFI)	0.76
Normed Fit Index (NFI)	0.76

Table 3. Structure Model Results: The Original Model

	Dependent Constructs		
Independent Constructs	Attitude	Subjective Norms	Intention
Convenience	0.68 (γ_{11})		
Superior Information	0.34 (γ_{13})		
Reasonableness of price	0.05(γ_{12})		
Risk	-0.73(γ_{14})		
Approval		0.49(γ_{25})	
Attitude		0.45(β_{21})	0.77(β_{31})
Subjective Norms			0.11(β_{32})
Intention			
Proportion of var. explained (R^2)	0.62	0.52	0.81

The Modified Conceptual Model

Having an examination at the result with the original model, our study has modified the conceptual model, intending to achieve a better model fit. In the revised model (illustrated in Figure 3), the construct - reasonableness of price - is deleted as the coefficient in the Structural Equation model is only 0.05, an insignificant determinants of Attitude towards Internet banking. In addition, we hypothesis that I) the indicators X_1 and X_2 are correlated; II) the indicators X_{14} and X_{15} are correlated.

Reliability of the Measurement

In the revised model, the measurement model result (illustrated in Table 4) is similar as the original model even the determinant - reasonableness of price- is deleted as reliability is the testing of the internal consistency of the constructs.

The values of the standardized factor loadings and the Cronbach's alpha are shown. In the first item of the each construct, the factor loadings are fixed at 1.00, with a purpose to set up a scale for the latent constructs. Generally, the indicator coefficients (λs) of the constructs are high and statistically significant ($p < 0.01$, one tailed). In examining the reliability level, we found that the values of the Cronbach's alpha (α) are ranged from 0.6000 to 0.9024. This suggests that the reliability level for the constructs are moderate to high. As such, we can conclude that the measurement model of the modified model is also adequate.

Validity of Measurement

The proportion-of-variance extracted index, which indicates the amount of variance captured by a construct in relation to the amount of variance due to measurement error, demonstrates that all the constructs except perceived risk (0.672) have moderately high to high validity (ranging from 0.739 to 0.869). The figures of the proportion-of-variance extracted were listed in Table 4.

Table 4. Measurement Model Results: The Modified Model

Constructs and Indicators	Standardized Factor Loadings	Reliability	Proportion of variance extracted
CONVENIENCE		0.8774	0.815
X_1 ("easy access")	1.00	0.801	
X_2 ("24 hour services")	0.98	0.802	
X_3 ("less processing time")	1.26	0.857	
X_4 ("save time")	1.29	0.839	
X_5 ("save efforts")	0.91	0.778	
INFORMATIVE		0.6000	0.816
X_8 ("more banking information")	1.00	0.771	
X_9 ("comprehensive content")	1.02	0.860	
RISK		0.6774	0.672
X_{10} ("steal personal information")	1.00	0.551	
X_{11} ("place of transaction ")	1.21	0.762	
X_{12} ("complicated to use")	0.72	0.573	
X_{13} ("outdated IT development")	0.96	0.802	
APPROVAL		0.8670	0.837
X_{14} ("friends use Internet banking")	1.00	0.736	
X_{15} ("recommended by friend")	1.05	0.857	
X_{16} ("family uses Internet banking")	1.36	0.884	
X_{17} ("recommend by family")	1.46	0.871	
SUBJECTIVE NORM		0.8984	0.739
Y_1 ("my friend and family are positive")	1.0	0.721	
Y_2 ("my friend and family's attitude is favorable")	0.96	0.756	
ATTITUDE		0.9024	0.869
Y_3 ("attitude is positive")	1.0	0.889	
Y_4 ("like the idea")	0.93	0.849	
BEHAVIOR INTENTION		0.8747	0.858
Y_5 ("intend to use")	1.0	0.831	
Y_6 ("alternative of banking services")	1.04	0.884	

Structural Model Fit

Overall Model Fit

Employing the use of the Model Fit, our study dedicates to understand whether the Structural Equation Modeling method fits the sample data by using Chi-squared (χ^2), Bentler's comparative fit Index (CFI), Bollen's incremental fix index (IFI), Goodness of Fit Index (GFI) and Normed Fit Index (NFI).

Chi-square value (χ^2)

For the structural model results, the Chi-square value ($\chi^2_{174} = 299.94$, $p = 0.0$) of the revised model has a certain degree improvement when comparing the original model with the Chi-square value ($\chi^2_{212} = 441.02$, $p = 0.0$). However, the Chi-square value is significant / insignificant for the relationship between the observed sample covariance and the hypothetical population covariance.

Other Fit Indices

In considering the Bentler's CFI and Bollen's IFI, the improvement is significant in term of model fit. CFI and IFI have increased from 0.86 to 0.92, both values exceed the minimum threshold value of 0.9; while GFI and NFI have also an improvement and increased from 0.76 to 0.82 (illustrated in Table 5).

In this revised model, the result (illustrated in Table 6) shows that convenience ($\gamma_{11} = 0.71$, $p < 0.01$, one-tailed), risk ($\gamma_{13} = -0.74$, $p < 0.01$, one-tailed), and superior information ($\gamma_{12} = 0.40$, $p < 0.01$, one-tailed) are the significant determinants of attitude

towards the adoption of Internet banking. Generally, all of these values are higher than in the original model with $convenience_{original}$ (γ_{11} = 0.68, p <0.01, one-tailed), $risk_{original}$ (γ_{14} = -0.73, p <0.01, one-tailed) and superior $information_{original}$ (γ_{13} = 0.34, p <0.01, one-tailed). The negative value of risk can be explained in the same way of the original model. The R^2, or the proportion of variance explained by these independent constructs is 0.56, which is not significant different from the R^2 value in the original model ($R^2_{original}$ = 0.62).

For subjective norm, attitude (β_{21} = 0.46, p <0.01, one-tailed) and approval (γ_{24} = 0.57, p <0.01, one-tailed) are the significant determinants, which both of the values are higher than that of the original model ($\beta_{21original}$ = 0.45 and $\gamma_{25original}$ = 0.49). The R^2 of the function, or the proportion of variance explained by these two independent constructs, is 0.53, which is slightly higher than the value of the original model ($R^2_{original}$ = 0.52).

Finally, the result shows that behavior intention is the function of subjective norm (β_{32} = 0.11, p <0.01, one-tailed) and attitude (β_{31} = 0.78, p <0.01, one-tailed), which has no significant difference from the original model. The R^2 of the function, or the proportion of variance explained by these two independent constructs, is 0.81, which is the same as the original model ($R^2_{original}$ = 0.81).

Figure 3

The Modified Conceptual Model of the factors Affecting the Adoption of Internet Banking

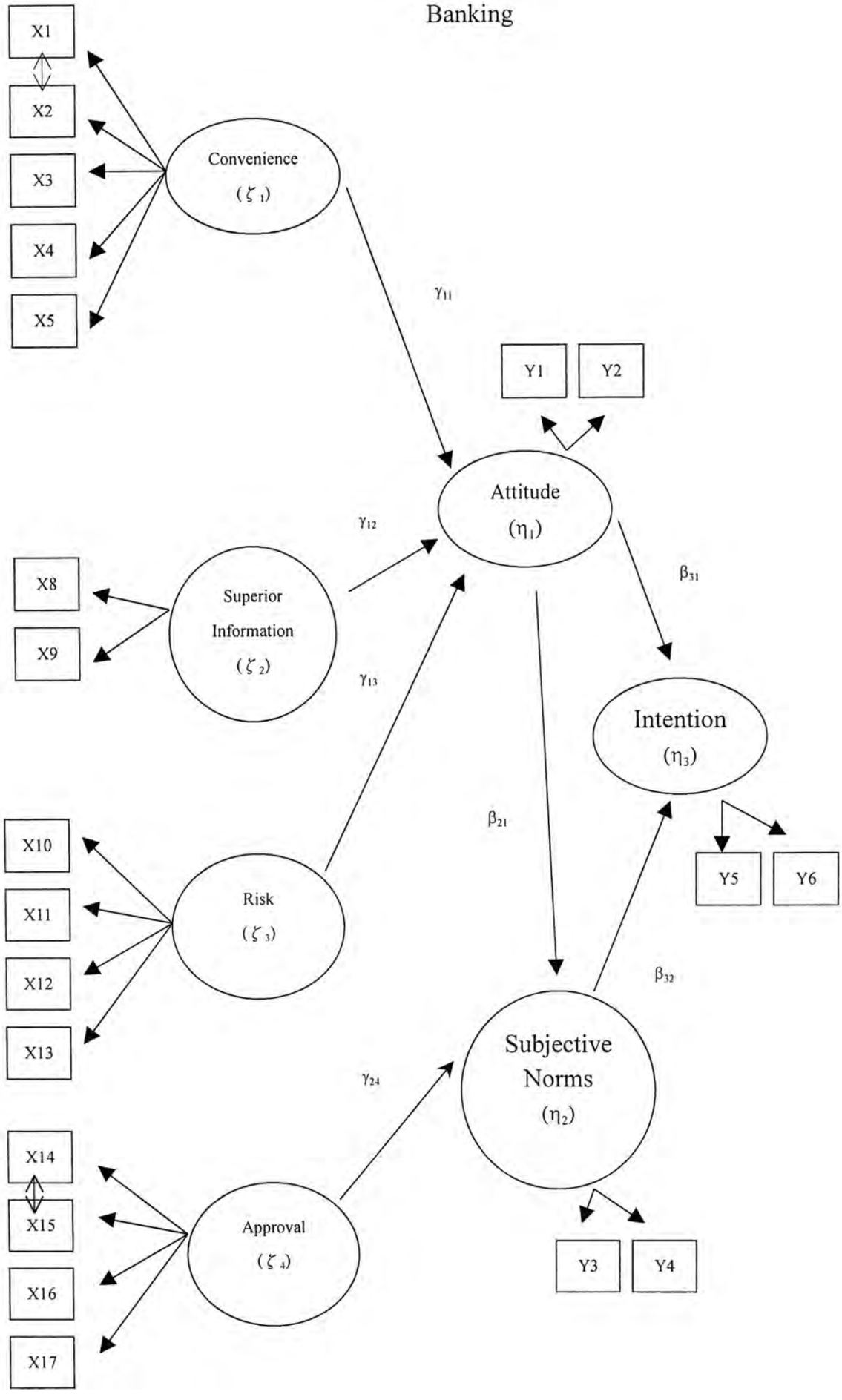

Table 5. Fit Statistics: The Modified Model

Chi-square	299.94
Degree of Freedom	174
Probability	0.0
Comparative Fit Index (CFI)	0.92
Incremental Fit Index (IFI)	0.92
Goodness of Fit Index (GFI)	0.82
Normed Fit Index (NFI)	0.82

Table 6. Structure Model Result: The Modified Model

	Dependent Constructs		
Independent Constructs	Attitude	Subjective Norms	Intention
Convenience	$0.71(\gamma_{11})$		
Superior Information	$0.40(\gamma_{12})$		
Risk	$-0.74(\gamma_{13})$		
Approval		$0.57(\gamma_{24})$	
Attitude		$0.46(\beta_{21})$	$0.78(\beta_{31})$
Subjective Norms			$0.11(\beta_{32})$
Intention			
Proportion of var. explained (R^2)	0.56	0.53	0.81

CHAPTER VI

CONCLUSION

The findings support all the hypotheses posited in the second model in this study. The major conclusion is that both attitude towards Internet banking (β_{31}=0.78) and subjective norms (β_{32}=0.11) are the determinants of intention to use Internet banking, which attitude has a higher influence than that of subjective norms. Attitude towards Internet banking is positively correlated with two factors: perceived convenience of usage (γ_{11}=0.71) and extent of information provided by Internet banking service (γ_{12}=0.40), and is negatively correlated with the perceive risk in using Internet banking (γ_{13}=-0.74). Moreover, apart from perceived approval (γ_{24}=0.57), attitude towards Internet banking (β_{21}=0.46) also has positive impact on the subjective norms.

Managerial Implication

From this study, we can conclude that the main determinant for the intention to use Internet banking is the attitude towards Internet banking, which is mainly determined by convenience and perceived risk. Therefore, if bankers want to develop a

successful Internet banking business, they should put the concentration in these areas.

Convenience can be expressed in terms of easiness to use (less complicated to use) and saving of time by using Internet banking. For easiness to use, marketers should pay more attention to the design of the web page, such that the web-site will be user-friendlier and should provide a convenience platform for customers to do transactions. All instructions should be precise and concise, and all procedures should be simple, such that the user will not feel clumsy or difficult when using Internet banking.

Moreover, all of the most-frequently-done transactions should be included in the Internet banking services such that the customers can find all the services they need in the same service media. If the customers have to switch between using Internet banking service and traditional brick-and-mortar banking for different kinds of frequently used services, it will cause major inconvenience to customers, and they may just return to the traditional banking service completely.

Furthermore, information provided in the web-site should be kept to be most updated, so that the Internet banking service will become the one-stop service platform for customers, and they do not need to cross check the information with other mean of service.

The Internet banking service may also incorporate a more comprehensive database such that after the customers have logged in to the system, it will fill in all information of the corresponding customers automatically for all application forms that are necessary for the transactions. This may make the transaction processes less

complicated, and on the other hand, can save the customers' time.

In order to let the customers perceive that Internet banking is a time saving mean of banking, it is important for the marketer to ensure that the downloading time of the web-site is reasonably fast. It has to strike against the balance of attractive animations or graphics used in the web-site with the downloading speed. If it takes too long to be downloaded, frustration of customers may occur. This will, in turns, have a negative impact on the overall attitude towards Internet banking, and will affect the intention to use Internet banking.

For perceived risk, usually customers have two concerns, one of which is: they afraid that their personal data will be hacked, another is they concern about the mean of securing the transaction orders placed via Internet instead of by face-to-face transaction.

In order to tackle with the security issue, the bankers should put more focus on the firewalls of the Internet system, or the encryption and decryption technologies. Moreover, the system in gathering the customers' personal information can be more secure, that the whole customers' profile should not be exposed to the Internet. For example, the customers can open the Internet banking account in the branches, that most of the personal details will be secured in the private system of the bank, and customers will be given a login Identity and a password for every transaction done via the Internet. By doing so, the personal information of the customers and their banking transaction records will not be exposed to the Internet simultaneously and thus

minimize the opportunity that the information of the customers will be hacked. In addition, bankers may also use electronic certificate or email transactional password to the customers' registered email address upon transaction to verify customers' identity.

By the above-suggested measures, bankers can create trust among the customers, and thus reduce their perceived risk towards Internet banking, and induce their intention to use. Nevertheless, if the measures were not effectively communicated to the customers, they are still not good enough. Therefore, in the promotional strategy of the Internet banking service, more emphasis should be place in promoting the convenience and security of the Internet banking service in order to create a more positive impact on the overall attitude towards Internet banking, as well as the intention to use.

Limitations

The most important limitation in this study concerns the generalizability of the findings. A relatively small sample (125 respondents) of university students in Hong Kong, aged between twenty to thirty, was surveyed, and they are assumed to hold at least one bank account and have some exposure to the Internet. As such, it is possible that demographics and social culture that are unique to Hong Kong's university students may affect the findings. The findings in this study should not be generalized to situations in other market segments without first considering the impact of cultural factor and demographics of target group. Readers are suggested to use the framework

of this study as a guideline to study their own target market, instead of use the findings of this study directly.

Future Research Directions

Future research can be conducted to study the banks' existing and potential customers' intention to use Internet banking. This may give the bankers a more precise idea on the major attributes that will affect their target groups' intention to use Internet banking, and thus marketing strategies can be composed accordingly.

Moreover, our study provides the general examination on the adoption of the Internet banking services, without specifying in any individual banking services. It is recommended that if the bank would like to study the market of a certain banking service, such as online mortgage services, and online stock trading services, further research on that specific market can be done.

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